

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte J. RICHARD AYLWARD, HILMAR LEHNERT
and ROBERT P. PARKER

Appeal 2007-3678
Application 09/735,123
Technology Center 2600

Decided: December 4, 2007

Before KENNETH W. HAIRSTON, LANCE LEONARD BARRY, and ST.
JOHN COURTENAY III, *Administrative Patent Judges*.

BARRY, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF THE CASE

A Patent Examiner rejected claims 1-23. The Appellants appeal therefrom under 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b). An oral hearing on this appeal was conducted on November 14, 2007.

A. INVENTION

1 The invention at issue on appeal adjusts the relative phase of combined signals. More specifically, the invention first shifts the phase of a first audio signal from a first audio channel relative to a second audio signal from a second audio channel, the first and second audio signals having a first and second frequency range. It then combines the audio signals. (Spec. 1.)

B. ILLUSTRATIVE CLAIM

Claim 1, which further illustrates the invention, follows.

1. A method for combining a first audio signal from a first audio channel and a second audio signal from a second audio channel, said first and second audio signals having a first and second frequency range, comprising:

shifting the phase of said first audio signal relative to said second audio signal, wherein said shifting is constant and substantially limited to said first frequency range from about 20 Hz to about 500 Hz; and

combining the relatively phase-shifted audio signal from said first channel with the audio signal from said second channel to provide a combined bass frequency signal with the range of phase shifting being between about 60 degrees and about 120 degrees,

and electroacoustically transducing the combined bass signal.

C. REJECTIONS

Claims 1-23 stand rejected under 35 U.S.C. § 112, ¶ 1, as lacking a written description. Claims 1-17, 20, 22, and 23 stand rejected under

35 U.S.C. § 103(a) as obvious over U.S. Patent No. 4,356,349 ("Robinson"); U.S. Patent No. 6,683,962 ("Griesinger"); and U.S. Patent No. 5,333,201 ("Waller"). Claim 21 stands rejected under § 103(a) as obvious over Robinson; Griesinger; Waller; and U.S. Patent No. 6,332,026 ("Kuusama").

II. INTIAL OBSERVATIONS

Before addressing the issues in this appeal, we make two observations.

A. DRAWINGS

"The drawing[s] in a nonprovisional application must show every feature of the invention specified in the claims." 37 C.F.R. § 1.83(a)(2000).¹ Here, claims 11 and 14 recite in pertinent part an "electrostatic transducing apparatus." We are unable, however, to see such an apparatus in the Appellants' Figures. Being "basically a board of review," *Ex parte Gambogi*, 62 USPQ2d 1209, 1211 (BPAI 2001), we leave the question of the adequacy of the Figures to the Examiner.

B. BACKGROUND OF THE INVENTION

The Background of the Invention section of a specification ordinarily comprises two parts," MPEP § 608.01(c) (7th ed., rev. 1, Feb. 2000²), viz., "(1) Field of the Invention" (*id.*) and "(2) Description of the related art

¹ We cite to the version of the Code of Federal Regulations in effect at the time of the Appeal Brief. The current version includes the same rules.

² We cite to the version of the Manual of Patent Examining Procedure in effect when the Appellants filed their patent application. The current version includes the same guidance.

including information disclosed under 37 CFR 1.97 and 37 CFR § 1.98" (*Id.*). For its part, the latter comprises "paragraph(s) describing to the extent practical the state of the prior art or other information disclosed known to the applicant, including references to specific prior art or other information where appropriate." (*Id.*) "Where applicable, the problem involved in the prior art or other information disclosed which are solved by the applicant's invention should be indicated." (*Id.*)

Here, the Appellants' Background of the Invention section (Spec. 1) appears to omit a description of the state of the prior art. Nor does it indicate a problem involved in the prior art. For the aforementioned reasons, I we leave the question of the adequacy of the Background of the Invention to the Examiner.

III. WRITTEN DESCRIPTION REJECTION

The Examiner makes the following assertions.

"[C]onstant" phase shifting does not appear to be supported by the specification. Specifically, the paragraph of the specification that begins at the bottom of page 5 and continues to the top of page 6 states that "the phase shift is preferably 60 to 120 degrees over the frequency range of interest" and it is desirable "to have most in the frequency range relatively shifted by close to 90 degrees". These phrases are not interpreted to mean an exact, invariant angular degree, but rather, an angular degree that varies over the given frequencies. The discrepancy is further illustrated by Figures 5a and 8b of the present

application, both of which show a phase shift that changes depending on frequency.

(Final Rej. 3-4.) The Appellants make the following observation.

The sentence beginning on line 23 of page 6, of the written description reads, "With regard to the invention, if the phase shift difference applied by the circuitry is 90 degrees, the resultant combined signal consists of two components with a

phase difference of 90 degrees, regardless of whether the two input signals were in phase or out of phase before being combined."

(Br.³ 4.) Therefore, the issue is whether the Appellants' disclosure reasonably conveys to the artisan that they had possession of a constant phase shift when they filed their patent application.

Written description under § 112 is a two-step inquiry. The first step is a proper construction of the claims. The second step requires a comparison of the properly construed claims to the original disclosure.

A. CLAIM CONSTRUCTION

"[A] claim construction analysis must begin and remain centered on the claim language itself" *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004). Here,

³ We rely on and refer to the Appeal Brief. The Reply Brief "has not been considered because it is not in compliance with 37 CFR § 41.4 l(a), (Office Communication of Feb. 23, 2006), i.e., it "contains new . . . or non-admitted evidence." (*Id.*)

claim 1 recites in pertinent part the following limitations: "shifting the phase of said first audio signal relative to said second audio signal, wherein said shifting is constant" Claims 11 and 14 include similar limitations. Centering on the claim language, the three independent claims require generating a constant phase shift between a first audio signal and a second audio signal.

B1. WRITTEN DESCRIPTION ANALYSIS

"[T]he test for sufficiency of support . . . is whether the disclosure of the application relied upon 'reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.'" *Ralston Purina Co. v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575 (Fed. Cir. 1985) (quoting *In re Kaslow*, 707 F.2d 1366, 1375 (Fed. Cir. 1983)). "Application sufficiency under § 112, first paragraph, must be judged as of the filing date." *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1566 (Fed. Cir. 1991) (citing *United States Steel Corp. v. Phillips Petroleum Co.*, 865 F.2d 1247, 1251 (Fed. Cir. 1989)).

"Referring now to FIG. 7a, there is shown a plot of phase shift vs. frequency for the embodiment" (Spec. 7.) We find that the artisan would have understood the Figure to show a constant phase shift. Because the Figure shows a constant phase shift, the Appellants' disclosure reasonably conveys to the artisan that they had possession of a constant phase shift when they filed their patent application. Therefore, we reverse the written description rejection of claims 1-23.

IV. OBVIOUSNESS REJECTIONS

The Examiner finds, "The result of [Robinson's] phase shifting is shown in Figure 2 as curve 52 (col. 4, lines 34-36). . . . As can be seen in Figure 2, this phase shift is relatively minor, the shown values varying from 2° to a maximum of 9° (col. 4, lines 36-40)." (Final Rej. 5.) He asserts that "this reads on 'said shifting is constant'." (*Id.*) The Examiner further finds, "Griesinger teaches that constant phase shifting networks are well known in the art, and are generally arranged to approximate a 90° phase shift over a given range of frequencies, such as 20-200 Hz (col. 15, lines 17-23)." (*Id.* at 6.)

The Appellants argue, "Using time delay to introduce phase shift as shown in FIG. 2 of the primary reference induces phase shift that is a function of frequency (col. 4, lines 35-41)." (Br. 9.) They further argue, "The secondary reference does not overcome the shortcomings of the primary reference in disclosing driving separate speakers with a 90 degree phase shift." (*Id.*) Therefore, the issue is whether teachings from the prior art itself would have suggested generating a constant phase shift between a first audio signal and a second audio signal, combining the phase shifted pair of signals, and electroacoustically transducing the combined signal.

"Both anticipation under § 102 and obviousness under § 103 are two-step inquiries. The first step in both analyses is a proper construction of the claims The second step in the analyses requires a comparison of the

properly construed claim to the prior art." *Medichem, S.A. v. Rolabo, S.L.*, 353 F.3d 928, 933 (Fed.Cir. 2003) (internal citations omitted).

A. CLAIM CONSTRUCTION

"The Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art." *In re Lowry*, 32 F.3d 1579, 1582 (Fed. Cir. 1994) (citing *In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983)). Here, claim 1 recites in pertinent part the following limitations:

shifting the phase of said first audio signal relative to said second audio signal, wherein said shifting is constant and substantially limited to said first frequency range from about 20 Hz to about 500 Hz; and

combining the relatively phase-shifted audio signal from said first channel with the audio signal from said second channel to provide a combined bass frequency signal with the range of phase shifting being between about 60 degrees and about 120 degrees,

and electroacoustically transducing the combined bass signal.

Claims 11 and 14 include similar limitations.

As explained regarding the written description rejection, claims 1, 11, and 14 require *inter alia* generating a constant phase shift between a first audio signal and a second audio signal. Considering the latter claim limitations, moreover, the independent claims further require combining the

phase shifted pair of signals and electroacoustically transducing the combined signal.

1

B1. OBVIOUSNESS ANALYSIS

"In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness." *In re Rijckaert*, 9 F.3d 1531, 1532 (Fed. Cir. 1993) (citing *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992)). "A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell*, 991 F.2d 781, 783 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051 (CCPA 1976)).

Here, Robinson "relates to a method and apparatus for enhancing sound from stereo recordings." (Col. 1, ll. 8-9.) "With reference to FIG. 1, an apparatus 10 in accordance with the invention is shown. A source 12 of audio signals such as . . . a stereo receiver, tape or disc playback device or the like provides a pair of stereo signals A and B on lines 14, 16." (Col. 3, ll. 57-61.) "[T]he A, B audio signals are applied to a summing network 18 which produces the sum A+B on output line 20 and to a difference network 22 to generate the difference A-B on output line 24." (Col. 4, ll. 4.)

"The difference signal A-B is applied to a modifier network 30 having a transfer function G_2 to produce an audio signal V_4 on output line 32.

The modifier network 30 has a transfer function selected to introduce a small time delay, TD, for low frequencies" (*Id.* ll. 11-15.) "Such time delay may be achieved with a phase shift which varies in the manner as shown with curve 52 in FIG. 2," (*id.* ll. 34-36), the curve on which the Examiner relies for anticipation.

Although the apparatus 10 produces a phase shift between the sum signal A+B and the difference signal A-B, the shift is not constant. To the contrary, "The phase shift is illustrated to vary as a function of frequency" (*Id.* ll. 36-37.)

Although that part of Griesinger cited by the Examiner teaches that "[c]onstant phase shifting networks are well known in the art, and are usually designed to approximate a quadrature phase difference between the left and right output" (col. 15, ll. 17-19), the secondary reference does not combine these outputs and electroacoustically transduce the combined signal. To the contrary, we agree with the Appellants that Griesinger drives a separate speaker with each of the left and right output. (*Id.* ll. 11-12.)

The Examiner does not allege, let alone show, that the addition of Waller or Kuusama cures the aforementioned deficiency of Robinson and Griesinger. Absent a teaching or suggestion of generating a constant phase shift between a first audio signal and a second audio signal, combining the phase shifted pair of signals, and electroacoustically transducing the combined signal, we are unpersuaded of a prima facie case of obviousness.

Therefore, we reverse the obviousness rejection of claims 1, 11, and 14 and of claims 2-10, 12, 13, 15-17, and 20-23, which depend therefrom.

V. ORDER

In summary, the rejection of claims 1-23 under 35 U.S.C. § 112, ¶ 1, is reversed. The rejections of claims 1-17 and 20-23 under § 103(a) are also reversed.

REVERSED

pgc

FISH & RICHARDSON PC
P.O. BOX 1022
MINNEAPOLIS MN 55440-1022